52. (New) The electrophoretic display of Claim 51 wherein the solution or dispersion of the sealing composition has a specific gravity lower than that of the dielectric solvent.

53. (New) The electrophoretic display of Claim 8 further comprising a polymeric layer between the electrophoretic fluid and the bottom electrode layer.

54. (New) The electrophoretic display of Claim 1 wherein said electrophoretic composition is partially filled in each of said cells.

55. (New) The electrophoretic display of Claim 54 wherein said partially filled electrophoretic fluid is in contact with said polymeric sealing layer.

REMARKS

In the Office Action, the Examiner rejected Claims 1 and 3-7 under 35 U.S.C. §103(a) as being unpatentable over Oshiro et al.; Claim 2 under 35 U.S.C. §103(a) as being unpatentable over Oshiro *et al.* in view of Gordon II *et al.*; Claim 8-13, 15 and 16 under 35 U.S.C. §103(a) as being unpatentable over Gordon II et al in view of Oshiro *et al.;* Claims 17-19, 21 and 22 under 35 U.S.C. §103(a) as being unpatentable over Gordon II et al in view of Oshiro *et al.* and further in view of Robusto.

Claims 14 and 20 are objected to for being dependent upon rejected claims.

Applicants note with appreciation the allowance of Claims 23-25, 30 and 31.

Applicants have now amended Claims 1, 3, 6, 8, 10, 12, 13, 18 and 19. Claims 11 and 26-29 have been cancelled. Claims 32-55 are newly presented. No new matter has been added. A version with markings to show changes is attached.

Applicants have carefully considered the references cited by the Examiner in the above rejections and believe that the references do not render Applicants' invention as set forth in the amended and new claims unpatentable.

Amended Claim 1

Claim 1 has been amended to better define the polymeric sealing layer. The claim now requires each of the closed cells to comprise:

a) surrounding partition walls,

b) an electrophoretic composition filled therein, and

c) a polymeric sealing layer which encloses the electrophoretic composition in each cell and sealingly adhered to the surface of the partition walls.

The amended Claim 1 is supported by the application as filed, for example, the disclosures in paragraphs 23 and 56. Although not specifically numbered, the fact that the cells have surrounding partition walls is shown in Figures 1, 2a, 2b, 4a, 4c, 5a2, 5b2, 5c2, 6 and 7. The fact that the electrophoretic composition is filled in each of the cells is supported by at least paragraphs 52 and 64. Figures 6 and 7 also show that the polymeric sealing layer encloses the electrophoretic fluid in each cell. In addition, the polymeric sealing layer is not only in contact with the partition walls not covered by the electrophoretic fluid but also sealingly adhered to the surface of the partition walls not covered by the fluid.

For the Examiner's convenience, a complete English translation of Oshiro *et al.* is attached. In addition, copies of enlarged Figures 1 and 2 of Oshiro *et al.* are also attached with the features translated into English.

What is described in Oshiro *et al.* is the conventional sealing method commonly used in the manufacture of electrophoretic displays, known as the "edge sealing" method.

The spacers (8) as shown in Figure 1 are formed of a porous material and therefore they are full of pores (8A) [see Figure 2]. The dispersion system (7) having electrophoretic particles (6) is filled in the cells. There are 4 cells shown in Figure 1.

The spacers (8) serve as partitions between the cells. However, as shown in Figure 1, the adhesive layer (9) only appears at the top of the two spacers which are at the outer edge of the two outer most cells -- thus the name "edge sealing".

The adhesive layer (9) and the polymeric sealing layer of the invention are different in many aspects. First of all, the adhesive layer (9) does not enclose the electrophoretic fluid within each cell. In fact, the dispersion (7) in each cell in Oshiro *et al.* is in direct contact with the electrode 4. There is no adhesive layer or sealing layer between the dispersion in each cell and the electrode 4.

Secondly, it should be pointed out that the pores 8A of Oshiro *et al.* are not equivalent to the closed cells of the present invention. Therefore the passage cited specifically in the office action which states that:

> ***"... while the excess dispersion system 7 is extruded out by pressing the front surface of the flexible electrode plate 4 under heating to seal the dispersion system 7 into the respective pores 8A of the spacers 8."***

is not relevant to the invention. The cells of the Oshiro *et al.* display, as shown in Figure 1, are separated by spacers (8) and the spacer pores (8A) are within the spacers (8). The four cells in Figure 1 are sandwiched between two electrode plates 2 and 4. When a voltage difference is imposed between the electrodes, the pigment particles (6) migrate to one of the two electrodes to allow either the color of the particles or the color of the solvent to be seen through the transparent electrode plate 4. The four cells in Figure 1 therefore correspond to the closed cells of the present invention. However, in Oshiro *et al.*, the electrophoretic dispersion (7) in each cell clearly is in direct contact with electrode 4. This is further evidenced by Figure 2 of Oshiro et al. Figure 2 is the top view of the top surface of a spacer. The pores are in the center part of the spacer and the adhesive layer (9) is in the "circumferential region" on the top surface of the spacer. Clearly the adhesive layer (9) only covers the top surface of the two end spacers; it does not cover each individual cell.

Gordon II et al. does not disclose or suggest a polymeric sealing layer, let alone a polymeric sealing layer as described in the amended Claim 1.

Robusto et al. discloses an electrical field sustained conductivity device. It does not in any way disclose or suggest a polymeric sealing layer for an electrophoretic display.

For the sake of completeness, Applicants also wish to bring Harbour et al. to the Examiner's attention. This reference was submitted with the Information Disclosure Statement filed on February 28, 2002. The reference mentions a blocking layer (7) which appears between a transparent electrode 5 and the display fluid. First of all, Harbour et al. is silent as to the material used for the blocking layer. It does not disclose the blocking layer to be a polymer layer. Secondly, the reference does not mention or in any way suggest that the blocking layer is sealingly adhered to the partition walls.

New Claims 32-55

New Claim 32 requires the closed cells of Claim 1 to be substantially uniform in size and shape. This is supported by paragraph 35.

New Claim 33 specifies that the closed cells of Claim 1 are of different sizes and shapes. This is also supported by paragraph 35.

New Claim 34 specifies that the closed cells of Claim 1 are non-spherical. This is supported by paragraph 36.

New Claim 35 requires the closed cells of Claim 1 to be formed from microcups with an opening having a circular, polygonal, hexagonal, rectangular or square shape. This is supported by paragraph 36.

New Claims 36-41 defines the dimensions of the closed cells of Claim 1. They are supported by paragraph 37.

New Claim 42 requires the electrophoretic fluid of Claim 2 to be charged white particles dispersed in a colored dielectric solvent or solvent mixture. This is supported by paragraphs 39 and 40.

New Claim 43 requires the dielectric solvent or solvent mixture of Claim 42 to be colored by a dye or pigment. This is supported by paragraph 39.

New Claim 44 specifies that the dye or pigment of Claim 43 is uncharged or has a charge polarity different from that of the white pigment particles. This is supported by paragraph 39.

New Claim 45 requires the polymeric sealing layer of Claim 1 to be formed from a UV curable composition. This is supported by paragraph 45.

New Claim 46 requires the polymeric sealing layer of Claim 1 to be formed from a thermoplastic, thermoset or a precursor thereof. This is supported by paragraph 10.

New Claim 47 specifies that the polymeric sealing layer of Claim 2 is formed from a UV curable composition. This is supported by paragraph 45.

New Claim 48 requires the polymeric sealing layer of Claim 2 to be formed from a thermoplastic, thermoset or a precursor thereof. This is supported by paragraph 10.

New Claim 49 requires the thermoplastic, thermoset or a precursor thereof of Claim 48 to be immiscible or incompatible with said dielectric solvent. This is supported by paragraph 45.

New Claim 50 requires the thermoplastic, thermoset or a precursor thereof of Claim 48 to have a specific gravity lower than that of the dielectric solvent. This is also supported by paragraph 45.

New Claim 51 requires the sealing composition of Claim 4 to be dissolved or dispersed in an organic solvent that is incompatible or immiscible with the dielectric solvent of the electrophoretic fluid. This is supported by paragraph 47.

New Claim 52 requires the solution or dispersion of the sealing composition of Claim 51 to have a specific gravity lower than that of the dielectric solvent. This is supported by paragraph 45.

New Claim 53 requires the electrophoretic display of Claim 8 to further comprise a polymeric layer between the electrophoretic fluid and the bottom electrode layer. This is supported by disclosures and Figures 6 and 7, etc.

New Claims 54 and 55 are supported by at least Figures 6 and 7.

Obviousness Over Double Patenting

Applicants are filing concurrently herewith the Terminal Disclaimer to Obviate a Provisional Double Patenting Rejection Over a Pending Second Appication.

CONCLUSION

In view of the above, Applicants respectfully request reconsideration of the present application and an early allowance of the pending claims.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend Claims 1, 3, 8, 10, 12, 13, 18 and 19 as follows:

1. (Amended) An electrophoretic display comprising a plurality of **closed** cells **[which are filled with an electrophoretic suspension and are sealed with a polymeric sealing layer, said display is driven by an energy field.], each of said cells comprises:**

(a) surrounding partition walls,

(b) an electrophoretic composition filled therein, and

(c) a polymeric sealing layer which encloses the electrophoretic composition within each cell and sealingly adheres to the surface of the partition walls.

3. (Amended) The display of Claim 1 **[wherein said energy field is] which is driven by** an electric field.

6. (Amended) The display of Claim 5 wherein said polymer or oligomer is soluble **or dispersible** in said composition.

8. (Amended) An electrophoretic display comprising:

a) one top electrode plate and one bottom electrode plate, at least one of which is transparent; and

b) a plurality of cells enclosed between the two electrodes, **each of** said cells **[which are filled with an electrophoretic suspension comprising charged particles dispersed in a dielectric solvent or solvent mixture and sealed with a polymeric sealing layer placed between said electrophoretic suspension and one of the electrode plates.] comprises:**

(i) surrounding partition walls,

(ii) an electrophoretic composition filled therein, and

(iii) a polymeric sealing layer which encloses the electrophoretic composition within each cell and sealingly adheres to the surface of the partition walls.

10. (Amended) The display of Claim 9 **[further comprising an adhesive layer between the sealing layer and]** **wherein said** top electrode plate **is adhered to the sealing layer**.

12. (Amended) The display of Claim **[11]8** wherein said polymeric sealing layer is formed from a material selected from a group consisting of polyvalent acrylate or methacrylate, cyanoacrylates, polyvalent vinyl including vinylbenzene, vinylsilane, vinylether, polyvalent epoxide, polyvalent isocyanate, polyvalent allyl, and oligomers or polymers containing crosslinkable functional groups.

13. (Amended) The display of Claim 10 wherein said **adhesion is through an** adhesive layer **[is] formed from** an adhesive layer formed from a pressure sensitive adhesive, a hot melt adhesive, a heat, moisture or radiation curable adhesive.

18. (Amended) The display of Claim 17 **[further comprising an adhesive layer between the sealing layer and the]** **wherein said** top electrode plate **is adhered to the sealing layer**.

19. (Amended) The display of Claim 18 wherein said **adhesion is through an** adhesive layer **[is] formed from** an adhesive layer formed from a pressure sensitive adhesive, a hot melt adhesive, a heat, moisture or radiation curable adhesive.